Having thus described the preferred embodiments, the invention is now claimed to be:

1. A medium composition for the selective enhancement of anaerobes from a mixed sample that contains facultative microorganisms, wherein said medium composition comprises a nutrient medium, a salt of azide, wherein the azide is present in an amount sufficient to limit the growth of facultative microorganisms while not inhibiting the growth of anaerobe microorganisms.

2. The medium composition of claim 1, wherein the amount of the azide ranges from about 0.1 mg/ml to 1.0 mg/ml in broth medium.

3. The medium composition of claim 1, wherein the amount of the azide ranges from about 0.01 mg/ml to 1.0 mg/ml in agar medium.

4. The medium composition of claim 1, wherein the medium comprises Brain Heart Infusion, Brucella, CDC Anaerobe, Nutrient, Schaedler, Thioglycollate, or Trypticase Soy in broth or agar form.

5. The medium composition of claim 1, wherein the medium composition is contained in an anaerobic chamber, jar or bag.

6. The medium composition of claim 1, wherein the medium

composition is made anaerobic by an oxygen reducing agent comprises oxygen scavenging membrane fragments.

7. The medium composition of claim 1, wherein the mixed sample is obtained from

a. patients;

b. economically important animals; or

c. pharmaceutical, or environmental sources.

8. A method for the rapid recognition, isolation, or identification of anaerobes from mixed samples that also contain facultative microorganisms comprising the following steps:

a. providing a medium composition comprising a nutrient medium and a salt of an azide, wherein the azide is present in an amount sufficient to limit the growth of facultative microorganisms while not limiting the growth of anaerobic organisms;

b. inoculating a sample into the medium composition;

c. incubating the inoculated medium composition anaerobically;

d. comparing growth in the medium composition, with partial growth with the azide being indicative that an anaerobe is present; and,

e. sampling the medium composition containing the azide for further characterization and isolation of the anaerobe organism.

9. A device for the transport of a sample that contains anaerobes and facultative microbes to enable the recovery of the anaerobes, wherein the device comprises:

a. a medium composition comprising limited nutrients such as salts or buffers, liquid or solid, and an effective concentration of a salt of azide; and,

b. a means for creating an anaerobic environment for the medium composition.

10. A medium composition which allows for the selective growth of anaerobic microbes contained in a mixed sample also containing facultative microbes comprising a microbiological nutrient medium containing a hydrogen donating substance, a plurality of oxygen scavenging membrane fragments which contain an electron transport system which reduces oxygen to water in the presence of a hydrogen donor, and an inhibitor of the electron transport system required for cellular respiration, wherein the inhibitor is present in an amount sufficient to limit the growth of facultative microbes while not limiting the growth of anaerobic microbes.

11. The medium composition of claim 10, wherein the hydrogen donating substance comprises an organic substrate.

12. The medium composition of claim 10, wherein the hydrogen donating substance comprises lactic acid, succinic acid, alpha-glycerol

phosphate, formic acid or malic acid or any of their corresponding salts.

13. The medium composition of claim 10, wherein the oxygen scavenging membrane fragments are derived from the cytoplasmic membranes of bacteria.

14. The medium composition of claim 10, wherein the oxygen scavenging membrane fragments are derived from the cytoplasmic membranes of *Escherichia coli.*

15. The medium composition of claim 10, wherein the oxygen scavenging membrane fragments are derived from membranes of mitochondrial organelles.

16. The medium composition of claim 10, wherein the inhibitor of the electron transport system comprises an azide or cyanide.

17. The medium composition of claim 10, wherein the inhibitor of the electron transport system comprises a salt of an azide or a cyanide.

18. The medium composition of claim 10, wherein the inhibitor of the electron transport system is sodium azide.

19. The medium composition of claim 10, wherein the microbiological

nutrient medium comprises Brain Heart Infusion, Brucella, CDC Anaerobe, Nutrient, Schaedler, Thioglycollate or Trypticase Soy medium in broth or agar form.

20. A medium composition which restricts the growth of facultative microbes but not anaerobic microbes comprising a nutrient medium containing a hydrogen donating organic substrate, one or more oxygen scavenging membrane fragments derived from the cytoplasmic membranes of bacteria or from the membranes of mitochondrial organelles of non-bacterial organisms, and an inhibitor of the electron transport system required for aerobic respiration.

21. The medium composition of claim 20, wherein the oxygen scavenging membrane fragments are derived from the cytoplasmic membranes of *Escherichia coli*.

22. The medium composition of claim 20, wherein the inhibitor of the electron transport system comprises a salt of azide or cyanide.

23. The medium composition of claim 20, wherein the inhibitor is sodium azide.

24. The medium composition of claim 20, wherein the inhibitor of the electron transport system is present in an amount sufficient to limit the growth

of the facultative microbes but not the anaerobic microbes.

25. A medium composition which restricts the growth of facultative microbes but not anaerobic microbes comprising a base medium containing a hydrogen donating substrate, oxygen scavenging membrane fragments derived from the cytoplasmic membranes of *Escherichia coli,* and a salt of an azide.

26. The medium composition of claim 25, wherein the salt of an azide is present in an amount sufficient to limit the growth of the facultative microbes but not the anaerobic microbes.

27. A medium composition which restricts the growth of facultative microbes but not anaerobic microbes comprising a base medium, a biocatalytic oxygen reducing agent and a salt of an azide.

28. A method for the selective growth and isolation of an anaerobe from a mixed sample also containing a facultative microbe, said method comprising the steps of:

a. providing a medium composition comprising a nutrient medium containing a hydrogen donating substance, oxygen scavenging membrane fragments which contain an electron transport system which reduces oxygen to water in the presence of a hydrogen donor, and an inhibitor of the electron transport system required for respiration, wherein the inhibitor

is present in an amount sufficient to limit the growth of the facultative microbe but not of the anaerobes;

b. inoculating the medium composition with the mixed sample; and,

c. incubating the medium composition containing the mixed sample under anaerobic conditions.

29. The method of claim 28, further comprising the steps of:

d. providing an agar plate comprising a nutrient medium, oxygen scavenging membrane fragments which reduce oxygen to water and an inhibitor of the electron transport system required for respiration;

e. inoculating the plated agar medium with the medium composition containing the mixed sample; and,

f. incubating the plated agar medium inoculated with the medium composition under anaerobic conditions thereby producing isolated colonies of the anaerobe free of facultative microbe.

30. The method of claim 29, further comprising the step of:

g. selecting isolated colonies of the anaerobes for characterization and identification.

31. A method for the selective enhancement of an anaerobe from a mixed sample also containing a facultative microorganism, said method comprising the steps of:

a. providing a nutrient medium composition containing a biocatalytic oxygen reducing agent and a salt of an azide in an amount sufficient to limit the growth of facultative microorganisms while not inhibiting the growth of anaerobic microorganisms; and

b. inoculating the medium composition with the mixed sample; and,

c. incubating the medium composition containing the mixed sample under anaerobic conditions.

32. The method of claim 31, wherein the biocatalytic oxygen reducing agent comprises oxygen scavenging membrane fragments of bacteria.

33. The method of claim 31, wherein the biocatalytic oxygen reducing agent comprises oxygen scavenging membrane fragments of mitochondrial organelles.

34. The method of claim 32, wherein the bacteria is *Escherichia coli.*

35. The method of claim 31, wherein the salt of an azide is sodium azide.